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(54) **MEDICINE FEEDING DEVICE AND A MEDICINE COUNTING DEVICE USING THE MEDICINE FEEDING DEVICE**

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This patent is subject to a terminal disclaimer.

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See application file for complete search history.

(56) **References Cited**

#### **U.S. PATENT DOCUMENTS**

6,161,721 A \* 12/2000 Kudera ..... G07F 11/16  
221/277  
8,827,112 B2 \* 9/2014 Yuyama ..... G07F 17/0092  
221/224  
8,924,008 B2 \* 12/2014 Yuyama ..... A61J 7/0084  
221/237

(Continued)

#### **FOREIGN PATENT DOCUMENTS**

CN 201777395 U 3/2011  
FR 2 072 180 A5 9/1971

(Continued)

#### **OTHER PUBLICATIONS**

EPO, the Extended European Search Report including the Supplementary European Search Report and the European Search Opinion issued on Nov. 17, 2015 in European Patent Application No. 12736231.7, total 8 pages.

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(57) **ABSTRACT**

A medicine feeding device is configured by providing a first rotor that rotates around a first shaft, a second rotor that rotates around a second shaft, a partition wall extending from the second rotor towards the first rotor, a medicine discharge port provided on the outside of the second rotor, a medicine guide section located in the downstream of a movement section in the medicine transport direction, and a height regulator disposed between the movement section and medicine guide section. In addition, the width regulator that is disposed between the medicine guide section and the height regulator is further provided. Also, a medicine counting device is further provided with a medicine detection means for detecting the medicine that is supplied from the medicine discharge port, and a counting means (central control unit) for counting the medicines based on the detection performed by the medicine detection means.

**19 Claims, 47 Drawing Sheets**

